Spinal cord injury

BACKGROUND

Spinal cord injury (SCI) is estimated to affect up to 240,000 Americans, with 10,000 new injuries occurring each year, mostly among young males. The spinal cord and the brain make up the central nervous system. SCI impairs the brain's ability to send messages to the rest of the body, and can result in paralysis, loss of feeling, chronic pain, and many other serious medical problems.

WHAT VA IS DOING

VA researchers are both studying the biological processes involved in SCI, in hopes of finding a cure, and working to develop new or improved treatments and adaptive technologies.

Highlights of current or recent research include the following:

• **Restoring normal breathing after SCI**—Researchers at the Boston VA and Harvard Medical School learned they could restore normal breathing in rats with upper-level spinal cord injury by administering the tranquilizer buspirone, which is commonly used to treat anxiety and help people quit smoking. The researchers believe the drug, and others in its class, stimulate nerve cells that play a role in respiration.

• **Easing chronic pain**—In Miami, scientists at one of VA's special centers for SCI research are exploring a new approach to treat the chronic pain that often accompanies spinal cord injury: They are grafting specially cultured neurons, or nerve cells, into the spinal cord. The cells are designed to release natural body chemicals, such as GABA or serotonin, that have a pain-relieving effect.

• **Functional Electrical Stimulation (FES)**—This technology uses surgically implanted electrodes to activate paralyzed muscles. VA scientists and colleagues in Cleveland are developing FES-based walking systems, hand-grasp systems and other devices that expand the abilities of patients with tetraplegia and paraplegia and increase their opportunities for employment and independence.

For more information on VA research:
Web: www.va.gov/resdev
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